Danger in the Comfort Zone

By LCdr. Tariq Rashid

Yes, I realize flying a helicopter from the back of a pitching and rolling small-deck ship at night, and in other-than-optimal weather, is an unnatural thing to do, but it's kind of cool.

We all have this sort of intellectual understanding that what we do is dangerous. But, every now and then, you get a feeling that runs through you and chills you to the bone, and you say to yourself, "I could get killed doing this." From time to time, we see that naked razor's edge that separates the dead from the living.

I was the OinC of an SH-60B detachment operating aboard a frigate in the seas west of Scotland in support of a major international exercise. November in the northern Atlantic means persistent bad weather, which already had led to the cancellation of many events. High winds had made it impossible to obtain relative winds within the envelope for day or night operations. This condition is, of course, not news to anyone who has deployed to these waters. Finally, one night, the weather abated, or so we thought.

On the second sortie of the night, we pushed about 50 miles north of our force to update the position of the Opfor. You couldn't have asked for a better night: The northern lights were shimmering green through our NVGs, and the navigation lights of the Opfor ships were visible 20 miles away.

Flying in a LAMPS paradise, we decided to head south of our own force to look for lurkers. About 10 miles south of mother, we saw a band of squalls that I didn't like the look of. What just moments earlier had appeared like an expansive and open sky, suddenly became a canyon of dark clouds filled with torrential rain and 50-knot winds. The mountainous islands to our east and west, which seemed distant and beautiful when visibility was 20 miles, became ominous and deadly giants, lurking hidden beyond the next squall.

How had the weather deteriorated so rapidly and, more importantly, without our notice? Within 10 minutes, the ship was reporting true winds of 50 knots. The weather was not over the ship yet, but with 50 knots winds pushing, it soon would be.

We had more than an hour of fuel above our minimum on-deck load, so we were not in extremis. We suddenly were faced with a decision. As I looked south, it was obvious the ship couldn't outmaneuver the weather. The flight deck beckoned me. Should we make a play for recovery before the weather got worse? Should we try and wait out the weather? Would conditions clear as rapidly as they had deteriorated? What about a divert to the field 50 miles away? Each action has a consequence; some doors open, and some doors close.

All naval aviators are taught the principles of operational risk management, and most could state the five steps of the ORM process while half asleep. While ORM is a great safety-planning tool, the usefulness of the ORM principles for decision-making during routine or extraordinary circumstances may have been undersold. It's relatively easy to decide when the choice is between an obviously benign alternative and a negative alternative. Should I try a running landing to that open

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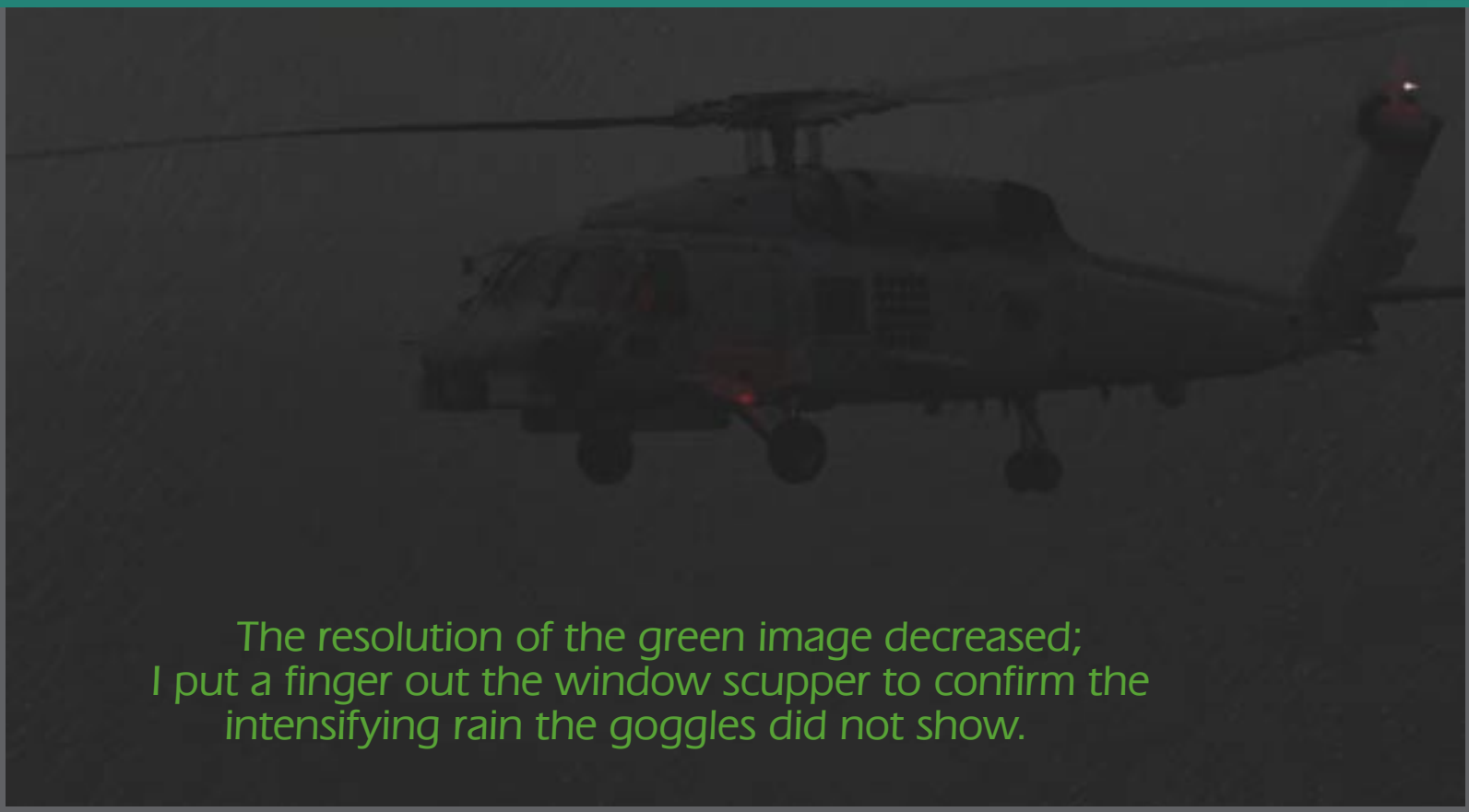

The resolution of the green image decreased; I put a finger out the window scupper to confirm the intensifying rain the goggles did not show.

runway, or go for the boulder-strewn field next to it?

But, what about deciding between three apparently reasonable, though undesirable, alternatives?

In this scenario, we quickly listed our alternatives. We then called the ship to have a pilot come to CIC, because we needed to get someone involved in the problem whose attention wasn't dominated by flying the aircraft.

Choice A: Make a play for recovery. The winds already were well out of the envelope, even for a recovery-assist (RA) landing. The squalls likely would be over the ship at recovery time, even if the ship immediately readied for us. *Worst likely consequence:* Night RA recovery, well beyond the prescribed envelope, with a significant likelihood of blinding rain while behind the ship.

Choice B: LAMPS modus operandi—that is, scout out better weather for the ship to maneuver to.

Worst likely consequence: The squalls were marching up the narrow seas between islands. As a result, we might not locate better weather and, because of the delay, have insufficient fuel for a divert. See Choice A above, but add pressure of being low on fuel.

Choice C: Divert to closed airfield 50 miles to the north, which doesn't possess a compatible instrument approach. *Worst likely consequence:* A combination of unfamiliar field and the possibility of conditions at the field being IMC. We would create prime conditions for a controlled-flight-into-terrain (CFIT) scenario.

We checked the weather to the south of our ship, hoping this was just a narrow band of squalls. We then set a bingo that would make sure we had sufficient fuel to reach the divert field. If at any time we went IMC, we would climb to the off-route, obstacle-clearance altitude for that sector.

Pushing south provided us little solace. The night-vision goggles (NVGs) let us peer through the darkness and lighter rain to the darker clouds beyond. We could see the sea and the lights of ships below. The resolution of the green image decreased; I put a finger out the window scupper to confirm the intensifying rain the goggles did not show. We decided to push through while we still had a few miles visibility, but the rain only grew heavier, and visibility dropped to nothing. We retreated and tried to find some gap in the weather, with no success.

I was concerned that, if we delayed any longer, this weather system might move over our divert field, and close that door to us. As the OinC, I had very strong feelings against taking the helicopter ashore. I recognized my bias and, immediately and consciously, discounted this bias as a factor in my decision—it was time to go.

I announced our intention to divert and asked the detachment maintenance officer aboard the ship to contact our divert airport. We turned north, intending to stay over the water and work our way toward the divert. We planned to stay feet-wet until we completely were clear of the squalls. I underestimated the degree that 50-knot winds can push a 120-knot aircraft out of position. We had been navigating visually, using a chart, with GPS as a backup. We soon lost confidence in what we thought was our position. This flight was setting up to be a classic controlled-flight-into-terrain (CFIT) scenario.

"Mishap HAC attempted to maintain VFR into deteriorating conditions, loss of situational awareness," I remembered reading. I had seen enough accident summaries to instinctively realize our situation. The No. 1 killer of helicopter pilots is flying a perfectly good aircraft into something.

Again, we were faced with undesirable alternatives.

Choice A: Stay low and pick our way north.

Consequence: See CFIT above.

Choice B: Climb into the clouds.

Consequences: Unable to regain VMC, and icing if we went high enough.

In 15 minutes, our comfort zone had shrunk to a very small space. Controlled flight into terrain was the imminent danger; we elected to climb. We energized all our limited anti-ice capability and climbed to 4,000 feet, which was 800 feet above the tallest mountain in the area. Within a few minutes, we were flying in the heaviest rain I ever have experienced. The rain roared against the thin windscreen. The heavy drops clearly were going almost horizontally past the window. I was concerned about water intrusion when the H2P pointed out the outside-air temperature: 3 degrees Celsius.

Few pilots will admit to fear. We use euphemisms like, "I did not have the warm fuzzy feeling," or "My pucker factor was up." There often isn't any time for conscious fear in dealing with an in-flight emergency or situation. I am not saying I was afraid; let's just say I had a "very healthy respect for the seriousness of our situation."

The H2P concentrated on maintaining a good instrument scan, while I tried to raise someone on the radio at the divert field and fix our location. I tuned up the VOR-DME at the divert field and used the VFR chart to determine how far the mountains were from the field. We decided to continue north but only as far as needed. We wanted to be sure we were clear of the elevated terrain before letting down into warmer air.

Just as I determined we were north of the higher mountains in the area, we broke out of the weather. One minute, we were blind, and, the next minute, we were in an expansive sky. Not so fast—we still had a problem. I had thought we were over the water the entire time. But, the 50-knot wind had pushed us so far northwest, we were over land when we broke into the clear. There was a good chance we had flown very near to the 3,200-foot-high mountain we had climbed to avoid.

Unable to raise anyone at the closed airport, we transmitted on common-distress frequencies our intention to land and requested someone to acknowledge. The lights at the airport weren't on and weren't pilot-controlled. At one mile from the big, dark area we thought was the airport, I finally saw the runway and entered the downwind to a final landing.

Even after landing, the fun didn't stop; the squall line moved over the field as we taxied to a parking spot. We had landed just in time. The weather cleared by sunrise, and we returned to the ship.

Our comfort level had gone from the size of Texas to the size of my rack on the ship in 15 minutes. The scenario had happened with subtlety, and there was no catastrophic failure to blame. How had this happened? The problem is that our comfort level never should have been that high. Flying aircraft off ships is inherently dangerous, but it's what we do, and, even on the best of days, a razor's edge separates us from disaster.

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